

ISED NS EVALUATION REPORT

Product Name: Mandalorian Wireless Charger
Trade Mark: N/A
Model No.: LUSW-MANDO-NA
Add. Model No.: N/A
Report Number: 210428004RFM-1
Test Standards: FCC Part2.1091, FCC Part2.1093
KDB447498 D01, KDB680106 D01
FCC ID: V77-LUSW-MANDO-NA
Test Result: PASS
Date of Issue: July 27, 2021

Prepared for:

ThinkGeek, Inc.
625 Westport Parkway, Grapevine Texas 76051

Prepared by:

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UTTR-FCC-MPE-V1.0

Version

Version No.	Date	Description
V1.0	July 27, 2021	Original

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1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	Think geek, Inc.
Address of Applicant:	625 Westport Parkway, Grapevine Texas 76051
Manufacturer:	Think geek, Inc.
Address of Manufacturer:	625 Westport Parkway, Grapevine Texas 76051

1.2 EUT INFORMATION

Product Name:	Mandalorian Wireless Charger
Model No.:	LUSW-MANDO-NA
Trade Mark:	N/A
DUT Stage:	Identical Prototype
Operating Frequency Range:	111KHz -205KHz
Antenna Type:	Coil antenna
Power Supply	100-240V~50/60Hz
Sample Received Date:	May 10, 2021
Sample Tested Date:	June 17, 2021 to June 19, 2021

1.3 OTHER INFORMATION

Support Equipment

Description	Manufacturer	Model No.	Input/ Output
Mobile phone	Samsung	Samsung Galaxy 7	N/A

1.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

KDB447498 D01 General RF Exposure Guidance v06

KDB680106 D01 RF Exposure Wireless Charging Apps v03r01

FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

All test items have been performed and recorded as per the above standards

1.5 DEVIATION FROM STANDARDS

None.

1.6 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.7 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

2. EQUIPMENT LIST

Test Equipment List						
Used	Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm dd, yyyy)	Cal. Due date (mm dd, yyyy)
☒	Electric and magnetic field analyzer	narda	EHP-50F	510WY90119	Jul. 28, 2020	Jul. 27, 2021
☒	Electric and magnetic field analyzer	narda	EHP-200A	170WX90206	Aug. 03, 2020	Aug. 02, 2021
☒	Probe holder	STT	TR-01	N/A	N/A	N/A
☒	Optical fiber line	STT	L=5M	N/A	N/A	N/A

3. MPE EVALUATION

3.1 REFERENCE DOCUMENTS FOR EVALUATION

No.	Identity	Document Title
1	错误!未找到引用源。	PROCEDURES IMPLEMENTING THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

3.2 MPE COMPLIANCE REQUIREMENT

3.2.1 Limits

3.2.1.1 错误!未找到引用源。

According to §1.1307(b)(1), system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

Limits for Occupational / Controlled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	F/300	6
1500-100000	/	/	5	6

Limits for General Population/Uncontrolled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500	/	/	f/1500	30
1,500-100,000	/	/	1.0	30

Note: f = frequency in MHz; * = Plane-wave equivalents power density.

3.2.2 Test Procedure

Enabled the EUT to transmit and receive data continue

a. The field strength of both E-field and H-field was measured at 15 cm surrounding the device and 20 cm above the top surface using the equipment list above for determining compliance with the MPE requirements of FCC

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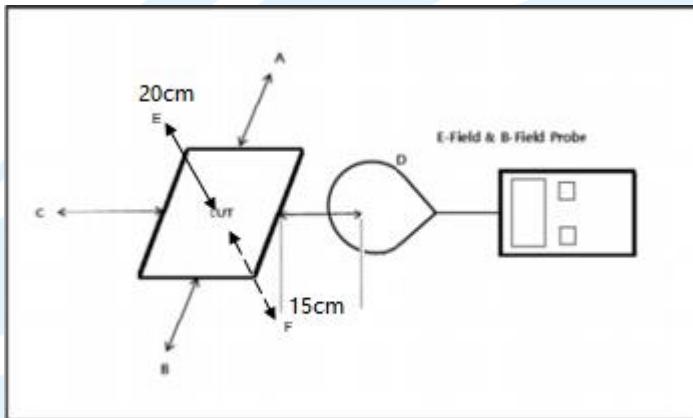
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Part 1.1310.

- b. The RF power density was measured with the battery at 3 different charge conditions: battery at less than 1 % , battery at 50% charger, battery at 99% charger.,
- c. Maximum E-field and H-field measurements were made 15cm from each side of the EUT. Along the side of the EUT and still 15cm away from the edge of the EU T, the field probes were positioned at the location where there is maximum field strength. The maximum E-field and H-field is reported below.
- d. This device uses a wireless charging circuit for power transfer operating at the frequency of 110-148 kHz. Thus, the 300 kHz limits were used: E-field Limit = 614 (V/m); H-field limit = 1.63 (A/m).

3.2.3 Test setup



Note

- The RF exposure test is performed in the shield room
- The test distance is between the edge of the charger and the geometric center of probe
- The aggregate at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated

3.3 TEST DATA

E-Field Strength

Test Position	Test distance (cm)	Test result (V/m)			Limit (V/m)	Result (Pass/Fail)
		<1% Battery status	<50% Battery status	<99% Battery status		
A: Right	15	0.0081	0.0077	0.0073	614	Pass
B: Left	15	0.0195	0.0186	0.0176	614	Pass
C: Front	15	0.0250	0.0238	0.0225	614	Pass
D: Back	15	0.0253	0.0241	0.0228	614	Pass
E: Top	20	0.0264	0.0222	0.0211	614	Pass
F: Bottom	15	0.0134	0.0127	0.0121	614	Pass

H-Field Strength

Test Position	Test distance (cm)	Test result (A/m)			Limit (A/m)	Result (Pass/Fail)
		<1% Battery status	<50% Battery status	<99% Battery status		
A: Right	15	0.1476	0.1402	0.1329	1.63	Pass
B: Left	15	0.3441	0.3268	0.3096	1.63	Pass
C: Front	15	0.4384	0.4165	0.3946	1.63	Pass
D: Back	15	0.4339	0.4122	0.3905	1.63	Pass
E: Top	20	0.3967	0.3769	0.3570	1.63	Pass
F: Bottom	15	0.2261	0.2148	0.2035	1.63	Pass

Remark:

The device meets the mobile RF exposure limit at a 15cm and 20cm separation distance as specified in &2.1091 of the FCC Rules.

All simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

3.4 TEST SETUP PHOTO

Please refer to the setup photo for grant

*** End of Report ***

The test report is effective only with both signature and specialized stamp. The result(s) shown in this report refer only to the sample(s) tested. Without written approval of UnionTrust, this report can't be reproduced except in full.

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